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EXAMINER

SELLERS, ROBERT E

ART UNIT PAPER NUMBER

1712

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/759,157

Applicant(s)

ISHII ET AL.

Examiner

Robert Sellers

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 3, 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4 and 5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☒ Claim(s) 1-7 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/29/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5, drawn to a hydroxyl-terminated polyphenylene ether, classified in class 528, subclasses 212 and 219.
- II. Claims 6 and 7, drawn to a blend of an epoxy resin and the hydroxyl-terminated polyphenylene ether, classified in class 525, subclass 396.

The inventions are independent or distinct from each other because:

Inventions I and II are related as mutually exclusive species in an intermediate-final product relationship. Distinctness is proven for claims in this relationship if the intermediate product is useful to make other than the final product, and the species are patentably distinct (MPEP § 806.05(j)). In the instant case, the intermediate product is deemed to be useful as a molding component and the inventions are deemed patentably distinct because there is nothing on this record to show them to be obvious variants.

Restriction for examination purposes as indicated is proper because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification.

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2. This application contains claims directed to the following patentably distinct species:

a) The hydroxyl-terminated polyphenylene ethers composed of either formula (2) alone, formula (3), alone or both formulae wherein R_1 to R_{10} and A are identified.

b) Contingent upon the election of Group II, item a) hereinabove and the epoxy resins such as the bisphenol A epoxy resin used in Table 1 on page 14 of the specification.

The species are independent or distinct because the hydroxyl-terminated polyphenylene ether is derived from a dihydric phenol of formula (2) and/or a monophenol of formula (3) is separately classifiable within class 528. The epoxy resins embrace species requiring searches in either class 525, subclass 481 or in class 525, subclass 523.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 1-7 are generic.

A reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

3. During a telephone conversation with Matthew M. Jacob on January 6, 2006, a provisional election was made with traverse to prosecute the invention of Group I and the hydroxyl-terminated polyphenylene ether prepared in Synthesis Example 1 on page 10, lines 19-21 obtained from **2,2',3,3',5,5'-hexamethyl-(1,1'-biphenyl)-4,4'-diol** (formula (2) wherein R₃ and R₆ are hydrogen, R₄ and R₅ are methyl as defined in claim 4, R₁, R₂, R₇ and R₈ are hydrogen and A is a direct bond) and **2,6-dimethylphenol** (formula (3) wherein R₉ and R₁₀ are methyl and R₁₁ and R₁₂ are hydrogen as depicted in formula (5) of claim 2), claims 1, 2, 4 and 5. Affirmation of this election must be made by applicant in replying to this Office action. Claims 6 and 7 are withdrawn from further consideration under 37 CFR 1.142(b) as being drawn to a non-elected invention. Claim 3 is withdrawn as being directed to a non-elected species of dihydric phenol of formula (2).

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The identifications of the species of R₁, R₂, R₇ and R₈ and species of R₃, R₄, R₅ and R₆ in claim 1, lines 8 and 10 are not concisely denoted since the term "may be" could include moieties other than those explicitly set forth. More favorable consideration would be given to the amendment of the term to "are."

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4 and 5 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 of allowed copending application no. 10/747,237 as represented by U.S. Publication No. 2004/0152848. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the publication depict the same hydroxyl-terminated polyphenylene ether of formula (1) containing units of formula (2) and/or (3) with the additional presence of a polyfunctional cyanate ester. The claimed epoxy resin curing agent does not preclude the further inclusion of the polyfunctional cyanate ester of the publication. The instant specification on page 8, paragraph 20, acknowledges the suitability of incorporating a cyanate resin.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishii et al. Publication No. 2004/0152848 for the reasons espoused with respect to the obviousness-type double patenting rejection espoused hereinabove.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Heitz et al. Patent No. 4,521,584 or German Patent No. 3,529,093 or CAPLUS accession no. 1986:461016 by Nava et al. or European Patent No. 921,158.

5. Heitz et al. (col. 3, Example 1, M_n of 887 and col. 4, claim 1), the German patent (CAPLUS abstract, M_n less than 2800 and page 2, formula (II)) or Nava et al. (CAPLUS abstract, M_n from 1000-5000) set forth hydroxyl-terminated copolymers of 2,2-bis(3,5-dimethyl-4-hydroxyphenyl)propane and 2,6-dimethylphenol with number average molecular weights embracing the claimed range from 500 to 3000.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:


(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Makromolekulare Chemie article by Risse et al., Japanese Patent Nos. 49-59154, 60-229923, 5-287191 and 2-120357 in view of Heitz et al. and German Patent No. 3,529,093.

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6. The references set forth hydroxyl-terminated copolymers of 2,2-bis(3,5-dimethyl-4-hydroxyphenyl)propane and 2,6-dimethylphenol except for Japanese '357 which shows a hydroxyl-terminated copolymer of the elected species of 2,2',3,3',5,5'-hexamethyl-(1,1'-biphenyl)-4,4'-diol and 2,6-dimethyl phenol prior to alkenyl or alkynyl functionalization (CAPLUS abstract, registry no. 129733-86-4). Japanese '191 (translation, page 5, first structure) also illustrates the elected moiety of claimed formula (2).
7. The claimed number average molecular weight of from 500 to 3000 is not recited. Heitz et al. and the German patent are described hereinabove and recognize the reactivity of the low molecular weight hydroxyl-terminated polyphenylene ethers with other polymer blocks (Heitz et al., col. 2, line 61 to col. 3, line 2) or as comonomers in the preparation of co-condensates (German patent, Derwent abstract, Use/Advantage section).
8. It would have been obvious to copolymerize the monomers of Risse et al., Japanese '154, '923, '191 and '357 such that a structure corresponding to that exhibited in Heitz et al. and the German patent results to the extent that a number average molecular weight of 887 or less than 2800, respectively, is attained in order to utilize the hydroxyl-terminated polyphenylene ether as a reactive component for epoxy resins as utilized in Japanese '923 and '191.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Sellers whose telephone number is (571) 272-1093. The examiner can normally be reached on Monday to Friday from 9:30 to 6:00. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.
rs 3/18/2006



ROBERT E.L. SELLERS
PRIMARY EXAMINER